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An Inaugural Essay

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Stictures of the Urethra

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by

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Philad.a Aug.t 30th 1827. of Virginia

Strictures of the Urethra

This disease has been defined by Mr Samuel Cooper to be a preternatural diminution of the diameter of a part of the urethral canal, a contraction of the whole never taking place.

By Mr Hunter strictures have been divided into permanent, permanent attended with spasm, and spasmodic. The permanent stricture depends upon an organic alteration of the structure of the canal of the urethra. The spasmodic stricture, by some, is said to consist in a spasmodic contraction of the muscles around the canal; but by Mr Hunter, Sir Everard Home, Cooper, Whately and others it is supposed to depend on the muscularity of the urethra itself. Though anatomists have been unable to detect any distinct muscular fibres in the urethra of man, yet in some of the

lower order of animals, as the horse they are apparent.

Although there is great authority on each side of the question, which as yet remains unsettled, yet I am disposed to believe that the canal itself possesses some degree of muscularity. This opinion is supported by the following facts. It is well known that after a bougie has been suffered to remain in the urethra for some time, it is withdrawn with much more difficulty, than if it were withdrawn instantly. And it will be evident that it cannot depend on the muscles of the perineum, as the canal contracts firmly around the bougie even to its external orifice. There is not only more difficulty in withdrawing it, but also in reintroducing it

Mr & Bell has made an experiment, which he thinks is sufficient to prove that the urethra possesses no muscularity. He introduced an ivory ball into the urethra of a patient who was unable to expel or retain it. This experiment I think would rather tend to prove that the urethra possessed muscularity, than that it did not; for if it possessed no muscularity and the muscles of the perineum were excited, they would contract and expel the ball. But the urethra itself contracting both before and behind the ball, it would necessarily remain stationary. Mr Bell also says there was no difficulty in withdrawing the ball; I have never performed the experiment with an ivory ball, but I am confident that everyone will admit, that there is always more or less difficulty in withdrawing a bougie, if allowed to remain in the urethra for any time. If Mr Bell

had performed the experiment with any substance of a conical shape, when the muscles by contracting would act on it on every side so as to cause its expulsion, I think, he would have been convinced of this fact

Wishing to satisfy myself as regards this experiment, I passed a thread through a piece of hard wax about the size of the canal of the urethra, this wax was made into a round ball, and introduced as far up the urethra as I thought was necessary. The patient was unable to expel it, but contrary to the experiment of Mr Bell I found some difficulty in withdrawing it, and was very much afraid that the thread which was attached to the wax would not be sufficiently strong for this purpose, After this I selected another piece of the hardest wax I

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could procure, and having made it into a conical shape introduced it, at first, about six inches. I found that there was considerable difficulty in pushing it forwards, and as soon as the force was taken off, the wax was gradually expelled. I then shortened the piece of wax and carried it down into the urethra about two inches, with the same result as in the second case

These experiments, I think are sufficient to prove that the urethra possesses contractility. But as this seems to modify the pathology and treatment so little, I shall say no more of it

Causes. The causes of stricture are such as produce irritation or inflammation in the mucous coat of the urethra. This inflammation sometimes extends to the other coats, and thus causes the effusion of lymph

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Gonorrhoea is no doubt one of the most common causes of this disease. and many of the cases which are supposed by the patients to be nothing more than a gleet or chronic gonorrhoea, are really strictures. This mistake is generally caused by the appearance of the discharge proceeding from stricture. which so closely resembles that of a gleet or chronic gonorrhoea that it cannot be distinguished. Next to gonorrhoea, the stimulating injections used in the cure of that disease are the most common cause.

In one case, which I saw, three strictures were produced by one injection of Nitras Argenti. This patient wishing to cure his disease at once, and without any trouble, during

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the height of the inflammatory stage resorted to this injection; after using it, he complained of a burning sensation along the urethra and in the perineum. Supposing that he had thrown the injection too high up, he was directed to inject a cold thin solution of gum arabic. This patient had been in the habit of using an ivory syringe with a very long pipe, on attempting to introduce it to throw up this injection, he was unable to carry it as far into the urethra, as he had formerly done. Thinking that there might be a stricture a wax bougie was introduced, and it was found that there were three strictures one about 2 inches from the orifice, one about 7 and one about 5½.

External violence, the passage of a calculus along the urethra,

blisters on the prepuce, enlarged prostate, & excessive indulgence in venery, and in fact any thing which will excite irritation in the canal will cause stricture

Strictures are said to be more common in warm than cold climates. What is the cause of this, I think, has not been satisfactorily explained. It is supposed to be owing to the great indulgences & excesses of which the inhabitants are too often guilty

Symptoms. The symptoms of this disease so closely resemble, many others of the urinary organs, that without exam & examination it is almost impossible to distinguish it The symptoms are generally divided into constitutional and local. The constitutional are derangement of the digestive organs, great irritability of the general

system, mind often very much affected; sometimes severe chills, followed by fever and profuse sweats.

In common cases where there is not much local irritability few of these general symptoms are present. But in some cases the irritability of the general system is so great as to destroy the patient.

Patients who have strictures are said to be very liable to colds. This may be the case in a greater number of instances, but in the few which I have seen, though the patients used no precaution to guard against it, they have never suffered the least from it.

The local symptoms are a discharge of purulent matter from the urethra, which in some cases seems to take place periodi

=cally, being much more profuse at some times than at others, a frequent desire to make water, and sometimes an involu=ntary discharge of it. The urine passes off in a form according to the nature and number of the strictures, either in drops, in forked, wiry or twisted stream and in one instance, which I saw, it passed out in three or four different streams, resembling water poured from a watering pot. The stream is generally smaller during erection. Nocturnal emissions are very frequent, and in some cases as painful as ardor urinæ, as in the most inflammatory stage of gonorrhœa and most painful immediately after withdrawing the bougie. There is also great uneasiness about the anus and perineum, and especially if the patient

be costive, owing to the irritation produced by the hardened fæces. The patient in bad cases is unable to cross his legs, and generally feels a tickling pain in the perineum, resembling the pricking of pins; sometimes this is felt in the urethra also

It is surprising what an effect an indulgence in eating or drinking, will have on this disease. If the patient indulge himself even in fermented liquor, he will suffer severely for his imprudence; I have seen a temporary suppression of urine, produced by one glass of ale.

If the patient indulge himself in coition, from the contraction of the canal, during this act it is impossible to eject the semen, which, on this account, regurgitates into the bladder, and remains there untill the urethra is relaxed, and the patient passes

his urine. This is said to aggravate the disease from the stricture's loosing the power of relaxing itself after this contraction

Diagnosis. The diagnosis of this disease is very difficult. The affections with which it is liable to be confounded are gonorrhoea, stone in the bladder, swelling of the prostate &c

Though many symptoms are pointed out as distinguishing marks of this disease yet I think none ought to be depended on; and that we should rely only on an examination, which is so easily made and production of so little pain, that no one can object to it. This may be done by a common white wax bougie, or urethra sound of Mr C Bell, which is said to be better for this purpose, as it passes readily and detects any irregularity of the urethra; and as many strictures may be found out at one with this

Prognosis. The surgeon is seldom called to a patient with stricture, till the disease is far advanced, and the stream of urine is either very small, or completely stopped. Under such circumstances we cannot expect a very favourable result; as by this time the patients constitution is very much injured, and the irritability of the system very great By Mr Hunter we are told, that when the smallest bougie can pass, a cure may be expected

If the disease be attended to early, we can always by simple means effect a cure; but unfortunately this is seldom the case, as most patients think, as before stated, that they have nothing more than a gleet or chronic gonorrhoea, and either of their own accord, employ such remedies as they think are adapted to the

cure of these, or apply to some surgeon for advice, respecting that which they think a gleet. I think it would be well to examine in all cases which resist the use of the ordinary remedies for more than five or six weeks

Dissection. On examination after death the stricture is generally found about, or behind the bulb of the urethra, which is about 7 inches from the orifice, or at 4 or 5 inches or 3½, or just within the orifice. The portion of the canal between the stricture and the bladder is very much enlarged and inflamed Often a coat of coagulable lymph is deposited behind the stricture, and sometimes closes the seminal ducts, and mucous follicles The prostate gland is sometimes very much inflamed, or ulcerate. Sometimes softwarts are found growing from the mucous coat

of the urethra.

The bladder is found contracted, and its coats thickened, and dark spots with small ragged holes in the middle of them on the fundus. The urethra is contracted at the place where the stricture exists, sometimes it resembles a thread tied around the canal, sometimes this appears only on one side. In some cases the urethra is irregularly contracted, or thickened in several places; and four or five strictures exist

Treatment. Having ascertained the nature number and situation of the strictures; by the means pointed out in the diagnosis, we must proceed to the cure of the disease

There are three ways which have been recommended for the cure of stricture, By a bougie, caustic, and stilet. By Mr

Hunter, it was supposed that a permanent cure could not be effected, by the use of bougies; but, I believe, it is now generally admitted that if the case be a recent one, it is the least painful and simplest mode of curing them.

This method is considered altogether mechanical, the bougie acting like a wedge, simply dilating the stricture, Mr Hunter supposed, then, to act also, by exciting ulceration in the strictured part; but this is seldom indeed unless unnecessary violence be used in the introduction of the bougie which was formerly often done.

The bougies usually employed are soap, gum elastic, whale bone, and flexible metallic. The last bougie, I think, should in all cases be employed in the commencement of the treatment with bougies, as they are certainly, when well oiled, produce=

=tive of as little pain or irritation as any substance of sufficient consistence capable of being made to enter the urethra, Though in some instances, they will be sufficient to effect a cure, yet after using them for sometime they seem from their softness, to have little effect on the stricture, and it becomes necessary to use those of a firmer consistence; for this purpose, the whale bone or gum elastic should be used, the former is the best where the stricture is very callous.

As to the flexible metallic bougie, I think, it should never be used to the exclusion of the others: as it yields too little to any irregularity in the urethra, and produces great irritation in its introduction.

The smallest size bougie, it appears to me, ought never to be used. For where the canal is so small as to prevent the intro=

duction of a common size bougie, other means should be resorted to, as these, it is admitted, are oftener the cause of a false passage than the stricture itself.
Nothing can be more dangerous in the hands of a patient or surgeon, who is not acquainted with the anatomy of the parts or not accustomed to the introduction of bougies, than a small sharp pointed bougie. Patients who are suffered to introduce the bougie themselves (which they can often do better than the surgeon himself) are generally under the impression that the smaller the bougie, the more easily it can be introduced. and by their many ineffectual attempts, they cause great irritation and thus aggravate the disease. It will be found in nine out often cases, that a large bougie

can be made to pass the stricture with much more ease, than one of the smallest size. The difficulty of passing a small bougie along the urethra is owing to its entering the lacunae which exist in every part of it.

Bougies ought always to be introduced while the patient is in bed; and the patient confined there, all the time it is in the urethra. This, I think, is of great importance, and should always be insisted on; as patients who experience little pain from the stricture and no inconvenience from the bougie are not willing to be confined to their beds and frequently withdraw the bougie too soon or rise with it in the urethra thereby creating great pain and irritation.

Bougies should be well oiled before their introduction; but care should be

taken not to suffer too much of the oil to remain on them, which is apt to be the case in cold weather, when it is thick and tenacious. Unless this precaution be taken, the oil may remain or collect in the urethra and form an abscess which happened in a case of Dr J Harris's

Mr Hunter tells us that when there is any difficulty in introducing the bougie in the first instance, to push it down to the stricture, and suffer it to remain a short time, and by doing this two or three times, we may succeed in passing the stricture. He also in some instances succeeded, by rubbing the perineum; this he supposes acts sympathetically, taking off the spasm from the stricture

The size of the bougie

should be gradually increased untill one of the natural size of the urethra can be passed with ease. This increase in some instances, must be very gradual, in others one of the size of the urethra may be passed in a few days.

The bougie should not remain in the urethra longer than two or three minutes, if it cause much pain or irritation. But this irritation, which is at first sometimes very great, gradually ceases, and then the bougie should remain in for two or three hours.

Both the lunar and vegitable caustic have been very much praised by some and condemned by others. Upon the whole, I think, the caustic a dangerous remedy, and would never resort to it, when other means

were in my power

The mode of applying the caustic is, first to introduce a common wax bougie, and carry it down to the stricture: another bougie is then taken, in the end of which a piece of caustic is introduced, this is carried down, as far as the first bougie; and kept in contact with the stricture for one or two minutes, or a shorter time if it produce much irritation. This operation may be repeated in one or two days, but not untill the effects of the first application have subsided.

Whately in using the kali purum, covers the end of the bougie with a little lard to prevent the caustic from acting on any part untill it comes in contact with the stricture

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appears to me, can always superseder the use of the caustic, and is certainly much more within our control, For when a caustic is applied to any passage, where its effects are not visible; is it not probable that it may act on parts which we did not intend it to touch, and which it is almost impossible for us to avoid. Certainly Dr P's instrument in the hands of a surgeon acquainted with the nature and situation of the stricture, which he wishes to divide, and anatomy of the parts; is as safe an instrument as the forceps in the hands of a accoucheur. This instrument has been condemned by some, but if we are to judge of a tree by its fruit, it must certainly be admitted that this is one of the greatest improvements in the management of strictures, as of

the many operations performed by Drs Physick and Gibson, I have not heard of a single failure, and not even a bad symptom resulting.

By Hunter, Home, Bell and Lobaltz it is admitted that many evil consequences, sometimes result from the application of caustic; and the many restrictions laid down by Lobaltz who has written a work on the employment of caustic for strictures, and on which he principally relies, would in nine out of ten cases, preclude its use altogether

If we cannot pass a bougie or if this has failed to effect a cure, and caustic be prohibited, what are we to resort to? I think it will be at once admitted that the only plan to be pursued under such

circumstances, is to divide the stricture with the stilet. This instrument consists of a lancet concealed in a canula. It is carried down to the stricture and as soon as the end of the canula comes in contact with the stricture, the lancet is carried forwards and it is divided. There is little difficulty in dividing the stricture if it be anterior to the bulb of the urethra, but if at the bulb it is not so easily done

But even admitting that a small wound be made in the urethra, it would heal in most instances, by the first intention, which we know would not be the case if the caustic be applied to any other part than the stricture.

After cutting through the

stricture, a flexible gum catheter should be introduced, and suffered to remain in the bladder for four or five weeks, and to prevent the stricture from closing after taking out the catheter introduce a wax bougie.

The best method says Dr Dorsey of treating spasmodic stricture, is to apply caustic, and during the spasm bleed purge, use opium, warm bath and sometimes cathis. a bougie of tobacco has been used to relieve spasm.

Amots dilator on account of its being so complicated and possessing no advantage over the bougie, is seldom resorted to.

If an unnatural passage be formed, either by the caustic or bougie, and the stricture remains

pervious we ought to use a larger bougie than the one by which this unnatural root was found, and particular care must be taken to bend the bougie in an opposite direction to the passage. It must also be introduced very gently and gradually.

Too little attention, I think, is generally paid to the regimen & diet of the patient who will, unless particularly cautioned against it indulge in every luxury his appetite or inclination may indicate. As long as the patient is permitted to go on in this way the stricture will continue irritable and more difficult to cure

The diet of a patient with stricture should consist of the lightest articles of diet. No spirits of any kind should be allowed not even porter or ale.

Since writing this essay I have seen a very ingenious instrument for dividing strictures

invented by my friend Mr. Chaw